Determination of Antimicrobial Activity of Nigella sativa Against Bacterial Isolates

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As pathogens are becoming resistant to most of the drugs, Nigella sativa can be used as an alternative compound to be used in modern medicines due to its antimicrobial, antioxidant and antitumor properties. In present research work, the antimicrobial effects of methanolic, ethanolic and aqueous extracts of Nigella sativa and Nigella sativa – Aloe barbadensis mixture have been evaluated against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Bacillus cereus by using agar well and disc diffusion methods. All types of N.sativa extracts exhibited significant antimicrobial activity against all bacterial isolates with different zones of inhibition. N.sativa and A.barbadensis mixture was found to give highest zone of inhibition (20.25 mm), making it most effective in inhibiting microbes as compared to all other extracts, followed by ethanolic extract (18 mm), methanolic extract (17.25 mm) and aqueous extract (13.75 mm). Standard drug (Ampicillin) used as a positive control showed zone of inhibition of 17.125 mm. Agar well diffusion method was found best in determining the antimicrobial activity giving highest zone of inhibition (18.1 mm) in comparison with disc diffusion method (16.45 mm). Among bacterial isolates, B.subtilis was found most sensitive against the extracts giving highest zone of inhibition (17.8 mm) followed by B.cereus (17.2 mm), S.aureus (17.1 mm) and E.coli (17 mm). Phytochemicals i.e., flavonoids, alkaloids, tannins, steroids and saponins were confirmed in N.sativa extracts. In conclusion, natural skin ointment containing N.sativa and A.barbadensis has been successfully prepared and proved as a valuable antimicrobial product to treat various skin infections caused by bacterial isolates.

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